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ARS SCIENCE HALL OF FAME

September 17

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Agricultural Research Service
U.S. Department of Agriculture

Agricultural Research Service SCIENCE HALL OF FAME

The ARS Science Hall of Fame was inaugurated in 1986. We determined that each succeeding year, one or more present or former scientists with the Agricultural Research Service could be selected, subject to the following criteria:

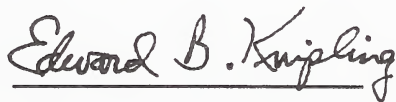
The selectee made a major impact on agricultural research, either by the solution of a significant agricultural problem through research or by providing outstanding leadership that significantly advanced agricultural research.

The selectee is a person whose accomplishments are still recognized by the agricultural research community.

The selectee's character and record of achievement are worthy of emulation by younger agricultural scientists.

The selectee's achievements must be or have been nationally and/or internationally recognized by peers in the scientific community.

Today we honor two outstanding scientists by inducting them into the Science Hall of Fame. A plaque citing the achievements of each will be on permanent display in the ARS National Visitor Center at the Beltsville Agricultural Research Center.

A handwritten signature in dark ink, reading "Edward B. Knipling". The signature is written in a cursive style with a horizontal line underneath the name.

Edward B. Knipling
Acting Administrator



SCIENCE HALL OF FAME

Edward B. Bagley

Research Leader (Retired)

National Center for Agricultural Utilization Research
Peoria, Illinois

For outstanding research in rheology and food science that generated fundamental understanding of flow mechanics; and for pioneering concepts in super-absorbent materials that resulted in one of the most successful technology transfers in USDA history.



Edward B. Bagley contributed foundational research to the science of rheology, the study of flow and deformation of matter. He is best known, however, for his role in developing the starch-based copolymer Super Slurper.

Bagley's work on rheology resulted in improved measurement and quality control of biological and food-based materials, and led to new developments in food processing technologies. He also led the development of a commercially viable process for salvaging aflatoxin-contaminated corn.

Super Slurper was one of the first super-absorbents of broad commercial use. It can absorb two thousand times its weight in water. Super-absorbents are found in many commercial products including batteries, fuel filters, baby powder and disposable diapers, wound dressings, soil conditioners and seed coatings, and formulations for chemical-spill control. The technology developed by Bagley stimulated worldwide interest and development of a \$2-billion-a-year industry.

Dr. Bagley has been presented with the Outstanding Scientist of the Year Award from ARS and has twice received USDA's Distinguished Service Award. He has received the IR-100 Award (from Industrial Research Magazine), Inventor of the Year Award (Association for the Advancement of Invention and Innovation), Bingham Medal (Society of Rheology) and G.W. Scott Blair Award (American Association of Cereal Chemists). Bagley is a Fellow of the Chemical Institute of Canada and a past president of the Society of Rheology.



SCIENCE HALL OF FAME

Janice M. Miller

Veterinary Medical Officer
National Animal Disease Center
Ames, Iowa

For pioneering research in understanding, diagnosing, and controlling bovine leukemia, transmissible spongiform encephalopathies, and other chronic infectious or zoonotic diseases of ruminants.



Janice M. Miller is a leader in the investigation of the biology, causes, and transmission of bovine leukemia and other serious diseases of ruminants. The tests she developed for bovine leukemia, bovine tuberculosis, and several other major cattle diseases have greatly reduced their threat to U.S. livestock production and exports.

She proved that bovine leukemia is caused by a virus and developed a simple gel immunodiffusion assay to identify infected cattle. This research set the stage for campaigns to control the disease in the United States and other countries. In addition, she proved that bovine leukemia is not a zoonotic agent and therefore poses no danger to the food supply.

Miller has also investigated bovine immunodeficiency disease, infectious bovine rhinotracheitis, bovine spongiform encephalopathy (so-called "mad cow" disease), scrapie, and chronic wasting disease of deer and elk. She developed a faster diagnostic test for bovine tuberculosis. Her research into infectious bovine rhinotracheitis ("red nose") proved that the disease causes infertility and embryonic death. She has also done important work on retrovirus and herpes infections.

Dr. Miller has received USDA's Distinguished Service Award and the Distinguished Scientist of the Year Award from the Agricultural Research Service in addition to the Women in Science and Engineering Award from the National Science Foundation. She was elected to the National Academy of Sciences and is a Special Fellow of the Leukemia Society of America. Miller has even been featured on the cover of the journal *Cancer Research*.

ARS SCIENCE HALL OF FAME

1986

Edward F. Knippling

For pioneering research and leadership in development of the sterile insect technique, which led to the eradication of the screwworm, and of other technologies to suppress and manage insect pests.

1987

Howard L. Bachrach

For pioneering research on the molecular biology of foot-and-mouth disease that led to development of the world's first effective subunit vaccine for any disease of animals or humans through the use of gene splicing.

Myron K. Brakke

For consistent, career-long valuable contributions to the science of virology, particularly plant virology.

Glenn W. Burton

For outstanding achievements in forage and turf science, which have had extraordinary effects on the forage-based cattle industry, the turf industry, and agriculture worldwide.

Wilson A. Reeves

For outstanding research and leadership in the field of textile chemical finishing that have significantly benefited agriculture and consumers.

Earnest R. Sears

For pioneering work in wheat genetics and for discoveries on chromosomal mechanisms that established standards in animal, plant, and human genetics.

Orville A. Vogel

For development of the first useful semidwarf wheats and of innovative production systems that made the Pacific Northwest a major source of soft white wheat, inspired similar research efforts throughout the world, and sparked the Green Revolution.

Cecil H. Wadleigh

For elucidating the mechanisms through which crops respond to salinity and water stress and for inspired planning and leadership that enabled and motivated those who worked with him to expand and make use of knowledge of soils, water, and air and their interactions with plants.

1988

Francis E. Clark

For outstanding research leading to greater understanding of soil, plant, and microbial interactions and of nutrient cycling in terrestrial ecosystems.

Edgar E. Hartwig

For research in soybean breeding and genetics that has been a major factor in soybeans becoming the second most valuable U.S. crop and particularly for developing cultivars that thrive in the South.

Ralph E. Hodgson

For significant contributions to the knowledge of ruminant nutrition and for visionary leadership, both domestic and international, in the animal industries.

Hamish N. Munro

For career-long contributions to the science of nutrition, particularly on the relationship of dietary protein and iron to the health of the elderly, and for promotion of studies on aging.

Jose Vicent-Chandler

For research leading to new and greatly improved production systems for beef, milk, coffee, plantains, and rice for Puerto Rico and Caribbean countries.

1989

Douglas R. Dewey

For world leadership in genetics and taxonomy of the Triticeae tribe of grasses and for development of the cytogenetic basis for creating new grass hybrids.

Theodor O. Diener

For conceptualizing and discovering viroids, for leading research on viroid detection and control, and for inspiring new approaches in the search for causes of several serious diseases affecting plants, livestock, and humans.

Karl H. Norris

For developing principles and instruments using the electromagnetic wave spectrum to make rapid nondestructive measurements for evaluating quality of agricultural products.

John F. Sullivan

For engineering contributions to the food-processing and preservation industries, including development of instant potato flakes and of batch and continuous-explosion puffing.

1990

Theodore C. Byerly

For extraordinary contributions as a scientist, research leader, and administrator to the success of agricultural research programs and advances in U.S. and world agriculture.

Gordon Dickerson

For research contributions widely used by breeders to increase production efficiency of cattle, sheep, swine, and poultry.

Robert W. Holley

For isolation and characterization, including the first nucleotide sequence, of transfer ribonucleic acid (tRNA).

Virgil A. Johnson

For outstanding contributions to development of superior bread wheat cultivars and of improved wheat germplasm and for vigorous promotion of national and international cooperation among wheat breeders.

George F. Sprague

For outstanding contributions to effective methods of hybrid corn breeding and germplasm improvement.

1991

John H. Weinberger

For outstanding lifelong contributions in development of fruit varieties and fruit-breeding technology.

Walter H. Wischmeier

For developing the Universal Soil Loss Equation, which has been widely used for three decades worldwide in conservation and management of our natural resources.

1992

Raymond C. Bushland

For pioneering research leading to screwworm eradication by the sterile insect technique and for research leading to control of typhus vectors.

Lyman B. Crittenden

For significant contributions to retroviral genetics, transgenic animal development, and genome mapping in poultry.

Arnel R. Hallauer

For increasing understanding and use of quantitative genetics in plant breeding, which has led to development of many superior corn hybrids worldwide.

1993

John R. Gorham

For scientific leadership and studies that have resulted in solutions of disease control problems and have advanced the basic knowledge of viral and genetic diseases in humans and animals.

Sterling B. Hendricks

For significant contributions as a chemist, physicist, mathematician, plant physiologist, geologist, and mineralogist.

Clair E. Terrill

For scientific contributions and worldwide leadership in sheep production research

1994

Charles N. Bollich

In recognition of superlative accomplishments in rice breeding and genetics and their consequent benefits to American agriculture.

Chester G. McWhorter

For outstanding contributions to American agriculture through basic and applied research that has resulted in improved weed-management technology, increased yields, and reduced cost of production.

Malcolm J. Thompson

For career research contributions in the field of insect and plant steroid biochemistry.

1995

Harry Alfred Borthwick

In recognition of contributions in elucidating the importance of photoperiodic mechanisms controlling flowering in plants.

William M. Doane

For initiating, leading, and conducting research that created new and useful products and led to the establishment of new industries based on agricultural raw materials.

Walter Mertz, M.D.

For contributions and leadership in elucidating the importance to health of several trace elements and promoting research on dietary risk factors for chronic disorders.

1996

Fred W. Blaisdell

For pioneering research and development of improved structures for soil and water conservation.

Herbert J. Dutton

For pioneering research leading to the establishment of soybean oil as the predominant edible vegetable oil in the world.

Charles Jackson Hearn

For developing improved orange, grapefruit, and tangerine varieties used extensively by U.S. citrus producers to replace trees killed by the 1980 freezes and to expand the citrus acreage.

1997

Morton Beroza

For major contributions to the development of environmentally compatible insect control strategies through discovery of lures, attractants, repellents, and pheromones.

R. James Cook

For extraordinary research on sustainable approaches to improve wheat health and for leadership in the transfer of information and technology resulting in solutions to agricultural problems.

William L. Ogren

For outstanding leadership and fundamental contributions to photosynthetic carbon metabolism leading to the discovery of new opportunities to improve the efficiency and productivity of crop plants.

1998

Thomas J. Henneberry

For conducting basic and applied individual and team research that has had sustained global impact on development and implementation of integrated pest management systems.

James H. Tumlinson III

For research that led to eradication of the boll weevil from the southeastern United States and the discovery of the chemical basis of plant-insect-parasite interaction.

1999

Allene R. Jeanes

For microbiological, chemical, and engineering research that created urgently needed, life-saving industrial polymers made from agricultural commodities.

Charles W. Stuber

For pioneering the use of molecular markers in identifying, mapping, and manipulating quantitative trait genes.

Richard L. Witter

For outstanding research contributions and leadership in the field of avian tumor viruses.

2000

Virginia H. Holsinger

For research leading to increased use of milk products and for humanitarian efforts in developing nutritious formulations for international food donation programs.

Marvin E. Jensen

For advancements in irrigation scheduling using computer models to estimate soil-water balance and for advancements in evapotranspiration theory.

Harley W. Moon

For contributions to a fundamental understanding of intestinal diseases in livestock and for development of effective control programs for these diseases.

2001

Lawrence A. Johnson

For pioneering research in developing the first useful technology for gender preselection of animal and human offspring and for outstanding contributions to semen preservation and artificial insemination in swine.

William E. Larson

In recognition of a pioneer who respected soil as a natural resource and devoted a research career toward improving its quality.

William L. Mengeling

For outstanding research contributions and leadership in the field of viral diseases of swine.

2002

George Inglett

In recognition of the development of novel, patented food ingredients including Oatrim and Nutrim, which have had a sustained beneficial effect on the American diet.

K. Darwin Murrell

For landmark research on parasites of veterinary and medical importance, especially trichinellosis of swine, and innovative development and leadership of laboratory and agency-level programs that established and advanced objectives of the Agricultural Research Service.

Stuart O. Nelson

For pioneering research on the dielectric properties of agricultural materials, applications of radio-frequency and microwave energy, and electrical measurements for moisture sensing in cereal grains.

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